

A PROCESS FOR RAPIDLY CONTROLLING A PROCESS VARIABLE TO ITS SETPOINT WITHOUT OVERSHOOT USING A TIME DOMAIN POLYNOMIAL FEEDBACK CONTROLLER.

Abstract: A process for controlling a process variable to a predetermined value (setpoint) where exceeding setpoint (overshoot) is not allowed. The method this controller employs is a time domain polynomial equation in a feedback configuration. This controller also includes a method to set the controller's output to zero if the process variable moves beyond setpoint. In addition, the controller includes a method to maintain the process variable at setpoint after the process variable initially approaches setpoint when this controller is applied to process control applications. An optional method included with this controller automatically improves one of the critical tuning parameters. The result of this method is the controller acts as an On/Off controller until the process variable approaches setpoint. At that point, the controller then acts as a fast responding analog controller "tailoring" the control variable to precisely bring the process variable into setpoint without overshoot.

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